



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,624	05/01/2006	Christophe Colignon	PSA0313156	3686
29980	7590	09/03/2008	EXAMINER	
NICOLAS E. SECKEL Patent Attorney 1250 Connecticut Avenue, NW Suite 700 WASHINGTON, DC 20036			NGUYEN, TU MINH	
			ART UNIT	PAPER NUMBER
			3748	
			MAIL DATE	DELIVERY MODE
			09/03/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/595,624

**Applicant(s)**

COLIGNON, CHRISTOPHE

**Examiner**

TU M. NGUYEN

**Art Unit**

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 August 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 01 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 20080821  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Inventor's Patent Application  
6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. An Applicant's Request for Continued Examination (RCE) and an Applicant's Amendment filed on August 21, 2008 have been entered. Claims 1 and 11 have been amended. Overall, claims 1-20 are pending in this application.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1, 2, 6, 11, 12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harndorf et al. (PCT Publication no. WO 02/38933) (see U.S. Patent 7,017,337 for the English equivalence) in view of Bolz et al. (U.S. Patent 6,510,685).**

Re claims 1 and 11, as shown in Figures 1, 2a, 4a, and 4b, Harndorf et al. disclose a system and a method for assisting the regeneration of depollution means (115) associated with oxidation catalyst-forming means (catalytic converter on lines 62-64 of column 2), and integrated in an exhaust line (110) of a motor vehicle engine (100), and in which the engine is associated with a fuel metering system (180) for feeding fuel to the cylinders of the engine and adapted, at constant torque, to implement a strategy of regeneration by injecting fuel into the cylinders in at least one postinjection (see lines 24-30 of column 4), the system comprising:

- detector means (see lines 26-31 of column 5) for detecting a request for regeneration and thus for postinjection;

- detector means (load variable value as indicated on lines 9-11 of column 7) for detecting a load engine load that signals a decelerated vehicle or an idling engine;

- acquisition means (193) for acquiring the temperature downstream from the catalyst-forming means;

- determination means (step 230) for determining, on the basis of the temperature, a maximum duration for applying postinjections during a stage in which the engine is returning to idling as a result of the low engine load (see lines 22-31 of column 6 that indicates a **shortened regeneration step** just to prevent total clogging of the depollution means when an operating of the engine is deemed to be unfavorable for regeneration); and

- cutoff means (a “N” answer in step 230 that signals an unfavorable operating state of the engine) for immediately cutting off the postinjection as soon as the duration of postinjection use has reached the predetermined maximum duration of application during the stage in which the engine is returning to idling as a result of the low engine load, so as to limit a quantity of fuel that are postinjected when temperature levels in the exhaust gas line are unfavorably low.

Harndorf et al., however, fail to disclose that the engine is a diesel type engine; and that the detector means utilizes a pedal sensor to detect a low engine load by sensing the pedal being raised, wherein the low engine load condition causes a main fuel injection cut-off.

Harndorf et al. disclose the claimed invention except for applying the invention to a diesel engine. It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the invention of Harndorf et al. to a diesel engine in which the

engine is associated with common rail means for feeding fuel to the cylinders of the engine, since the recitation of such amounts to an intended use statement. Note that both “diesel engine” and “spark-ignition engine” generate exhaust gases containing harmful emissions of HC, NO<sub>x</sub>, soot, CO, etc, that require purification before the gases can be released to the atmosphere; and the mere selection of the system and method of Harndorf et al. for use in a diesel engine would be well within the level of ordinary skill in the art.

As shown in Figure 2, Bolz et al. disclose a method for controlling catalytic converter heat losses during coasting shutoff. As depicted in Figure 1 and indicated on lines 12-17 of column 1, Bolz et al. teach that it is conventional in the art to utilize a pedal sensor (3a) to sense a pedal (3) being raised which signals a low engine load and causes a main fuel injection cut-off. As illustrated in Figures 2 and 3, Bolz et al. also teach that during the fuel injection cut-off, the temperature of a catalytic converter is monitored; and appropriate measure (in step 207) is taken to increase its temperature if the temperature drops below a threshold value (step 203 with Y answer). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the pedal sensor taught by Bolz et al. in the system of Harndorf et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to optimize gas mileage in a vehicle.

Re claims 2 and 12, in the modified system and method of Harndorf et al., the depollution means (115) comprises a particle filter (line 64 of column 2).

Re claims 6 and 16, in the modified system and method of Harndorf et al., the engine is associated with a turbocharger that is obvious for a typical diesel engine.

**4. Claims 3, 7, 13, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harndorf et al. in view of Bolz et al. as applied to claims 1, 2, 11, and 12, respectively, above, and further in view of Asanuma et al. (U.S. Patent Application 2002/0007629).**

The modified system and method of Harndorf et al. disclose the invention as cited above, however, fail to disclose that the depollution means comprises a NOx trap.

As shown in Figure 18, Asanuma et al. disclose a device for purifying an exhaust gas of a diesel internal combustion engine, comprising a particle filter (70). As depicted in Figure 22 and indicated in paragraphs 0091-0092, Asanuma et al. teach that it is conventional in the art to include a NOx trap and a noble metal catalyst on both sides of a partition wall (54) in the particle filter so that the filter is adapted to remove and purify harmful NOx emissions in the exhaust gas. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the particle filter taught by Asanuma et al. in the modified system and method of Harndorf et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to remove and purify harmful NOx and particulate matter emissions in an exhaust gas stream.

**5. Claims 4-5, 8, 14-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harndorf et al. in view of Bolz et al. as applied to claims 1, 2, 11, and 12, respectively, above, and further in view of Rao (U.S. Patent 4,655,037).**

Re claims 4, 8, 14, and 18, the modified system and method of Harndorf et al. disclose the invention as cited above, however, fail to disclose that the fuel includes an additive for becoming deposited together with the particles with which it is mixed on the depollution means in order to facilitate regeneration thereof.

Rao discloses a carbon ignition temperature depressing agent and a method of regenerating a particle filter utilizing the agent. As indicated on lines 30-42 of column 3 and line 58 of column 3 to line 14 of column 4, Rao teaches that it is conventional in the art to include an additive (metal oxide) in an engine fuel so that the additive is deposited together with the particles with which the additive is mixed on a particle filter in order to facilitate regeneration thereof by reducing an ignition temperature of the particles. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the additive taught by Rao in the modified system and method of Harndorf et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to save fuel or electricity by reducing an ignition temperature of the particles.

Re claims 5 and 15, in the modified system and method of Harndorf et al., as taught by Rao, the fuel includes an additive (metal oxide) forming a NO<sub>x</sub> trap.

**6. Claims 9, 10, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harndorf et al. in view of Bolz et al. and Asanuma et al. as applied to claims 3, 7, 13, and 17, respectively, above, and further in view of Rao.**

The modified system and method of Harndorf et al. disclose the invention as cited above, however, fail to disclose that the fuel includes an additive for becoming deposited together with the particles with which it is mixed on the depollution means in order to facilitate regeneration thereof.

Rao discloses a carbon ignition temperature depressing agent and a method of regenerating a particle filter utilizing the agent. As indicated on lines 30-42 of column 3 and line 58 of column 3 to line 14 of column 4, Rao teaches that it is conventional in the art to include an

additive (metal oxide) in an engine fuel so that the additive is deposited together with the particles with which the additive is mixed on a particle filter in order to facilitate regeneration thereof by reducing an ignition temperature of the particles. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the additive taught by Rao in the modified system and method of Harndorf et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to save fuel or electricity by reducing an ignition temperature of the particles.

***Response to Arguments***

7. Applicant's arguments with respect to the references applied in the previous Office Action have been fully considered but they are moot in view of the new ground(s) or rejection.

***Prior Art***

8. The IDS (PTO-1449) filed on August 21, 2008 has been considered. An initialized copy is attached hereto.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of one patent and one patent application: Yahata et al. (U.S. Patent 7,146,804) and Sato et al. (U.S. Patent Application 2005/0217251) further disclose a state of the art.



***Communication***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMN

September 2, 2008

/Tu M. Nguyen/

Tu M. Nguyen

Primary Examiner

Art Unit 3748